Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

NE/I

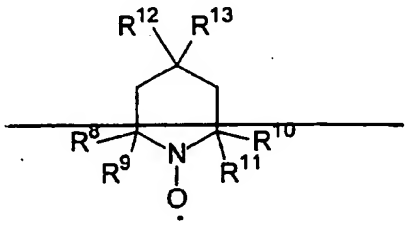
10/18/06

Claim 1 (Currently Amended): A process for preparing alkynecarboxylic acids, comprising

oxidizing an alkyne alcohol with a hypohalite in the presence of a nitroxyl compound at a pH of greater than 7 within a reaction mixture;

using from 2 to 5 mol equivalents of the hypohalite based on the number of functional groups to be oxidized, and

continuously adding the alkyne alcohol and the hypohalite to the reaction mixture, wherein said nitroxyl compound ~~has the formula:~~



~~where radicals R^8, R^9, R^{10} and R^{11} are each independently C_1-C_{12}-alkyl or C_2-C_{12}-alkenyl or C_6-C_{12}-aryl or aralkyl,~~

~~and radicals R^{12} and R^{13} are each independently hydrogen, OH, CN, halogen, linear or branched, saturated or unsaturated C_1-C_{20}-alkyl, C_6-C_{20}-aryl, C_6-C_{20}-hetaryl or C_6-C_{20}-aralkyl, OR^{14}, $O-COR^{14}$, $O=COOR^{14}$, $OCONHR^{14}$, COOH, COR^{14}, $COOR^{14}$, $CONHR^{14}$,~~

~~where R^{14} is a linear or branched, saturated or unsaturated C_1-C_{20}-alkyl radical, or a C_6-C_{20}-aryl, C_3-C_{20}-hetaryl or C_6-C_{20}-aralkyl radical, $-(O-CH_2-CH_2)_n-OR^{15}$, $-(O-C_3H_6)_n-OR^{15}$, $-(O-(CH_2)_4)_n-OR^{15}$, $-O-CH_2-CHOH-CH_2-(O-CH_2-CH_2-)_n-OR^{15}$,~~

~~where R^{15} is hydrogen, C_1-C_{20}-alkyl, C_6-C_{20}-aralkyl, where n = 1 to 100, or $CH_2-CHOH-CH_3$ or $CH_2-CHOH-CH_2-CH_3$, $NR^{16}R^{17}$, $NHCOR^{16}$, $NHCOOR^{16}$, $NHCONHR^{16}$,~~

~~where R^{16} and R^{17} are each independently a linear or branched, saturated or unsaturated C_1-C_{20}-alkyl radical, a C_6-C_{12}-cycloalkyl radical, or a C_6-C_{20}-aryl, C_3-C_{20}-hetaryl or C_6-C_{20}-aralkyl radical,~~

~~where radicals R^{12} and R^{13} may also be linked to a ring,~~

~~and where the radicals R^{12} and R^{13} in turn may also be substituted by COOH, OH, SO_3H, CN, halogen, primary, secondary or tertiary amino or quaternary ammonium,~~

~~or the radicals R^{17} and R^{13} together may also be =O, =NR^{18}, =N-OR^{18}, =N-N=$CR^{18}R^{19}$ where R^{18} and R^{19} are each independently hydrogen, C_1-C_{20}-alkyl or C_6-C_{20}-aralkyl~~

is selected from the group consisting of (2,2,6,6-tetramethylpiperidine-1-oxyl) also known as TEMPO, 4-hydroxy-TEMPO, 4-oxo-TEMPO, 4-amino-TEMPO, 4-acetamido-TEMPO, 4-benzyloxy-TEMPO, and 4-acetoxy-TEMPO, and

wherein the reaction mixture is in two phases.

Claim 2 (Canceled).

Claim 3 (Original): The process as claimed in claim 1, wherein at least one phase transfer catalyst is used.

Claim 4 (Original): The process as claimed in claim 1, comprising removing the reaction mixture continuously.

Claim 5 (Original): The process as claimed in claim 1, wherein the pH of aqueous phase of the reaction mixture is between 7 and 11.

Claim 6 (Original): The process as claimed in claim 1, wherein the nitroxyl compound used is 4-hydroxy-TEMPO.

Claim 6 (Original): The process as claimed in claim 1, wherein reaction temperature is between -5°C and 20°C.

Claim 7 (Original): The process as claimed in claim 1, wherein from 2 to 3 mol equivalents of the hypohalite are used based on the number of functional groups to be oxidized.

Claim 8 (Original): The process as claimed in claim 1, wherein the alkyne alcohol used is selected from the group consisting of 2-propyn-1-ol and 2-butyne-1,4-diol.

Claim 9 (Original): The process as claimed in claim 1, wherein the reaction is carried out in the presence of a substance selected from the group consisting of phosphate buffer and calcium carbonate.

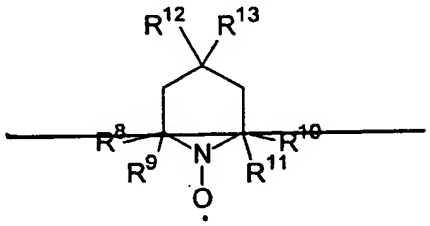
Claim 10 (Previously Presented): A process for preparing alkynecarboxylic acids, comprising

initially charging less than all of an alkyne alcohol to be oxidized in a reaction mixture;

oxidizing the alkyne alcohol with a hypohalite in the presence of a nitroxyl compound at a pH of greater than 7 within the reaction mixture;

using from 2 to 5 mol equivalents of the hypohalite based on the number of functional groups to be oxidized, and

continuously adding remainder of the alkyne alcohol and the hypohalite to the reaction mixture, wherein said nitroxyl compound ~~has the formula:~~



~~where radicals R^8, R^9, R^{10} and R^{11} are each independently C_1-C_{12}-alkyl or C_2-C_{12}-alkenyl or C_6-C_{12}-aryl or aralkyl,~~

~~and radicals R^{12} and R^{13} are each independently hydrogen, OH, CN, halogen, linear or branched, saturated or unsaturated C_1-C_{20}-alkyl, C_6-C_{20}-aryl, C_6-C_{20}-hetaryl or C_6-C_{20}-aralkyl, OR^{14}, O-COR^{14}, O-$COOR^{14}$, $OCONHR^{14}$, COOH, COR^{14}, $COOR^{14}$, $CONHR^{14}$,~~

~~where R^{14} is a linear or branched, saturated or unsaturated C_1-C_{20}-alkyl radical, or a C_6-C_{20}-aryl, C_3-C_{20}-hetaryl or C_6-C_{20}-aralkyl radical, $-(O-CH_2-CH_2-)_n-OR^{15}$, $-(O-C_3H_6-)_n-OR^{15}$, $-(O-(CH_2)_4-)_n-OR^{15}$, $-O-CH_2-CHOH-CH_2-(O-CH_2-CH_2-)_n-OR^{15}$,~~

~~where R^{15} is hydrogen, C_1-C_{20}-alkyl, C_6-C_{20}-aralkyl, where n = 1 to 100, or CH_2-CHOH-CH_3 or CH_2-CHOH-CH_2-CH_3, $NR^{16}R^{17}$, $NHCOR^{16}$, $NHCOOR^{16}$, $NHCONHR^{16}$,~~

~~where R^{16} and R^{17} are each independently a linear or branched, saturated or unsaturated C_1-C_{20}-alkyl radical, a C_6-C_{12}-cycloalkyl radical, or a C_6-C_{20}-aryl, C_3-C_{20}-hetaryl or C_6-C_{20}-aralkyl radical,~~

~~where radicals R^{12} and R^{13} may also be linked to a ring,~~

~~and where the radicals R^{12} and R^{13} in turn may also be substituted by COOH, OH, SO_3H, CN, halogen, primary, secondary or tertiary amino or quaternary ammonium,~~

~~or the radicals R^{12} and R^{13} together may also be =O, $=NR^{18}$, $=N-OR^{18}$, $=N-N=CR^{18}R^{19}$ where R^{18} and R^{19} are each independently hydrogen, C_1-C_{20}-alkyl or C_6-C_{20}-aralkyl~~ is selected from the group consisting of (2,2,6,6-tetramethylpiperidine-1-oxyl) also known as TEMPO, 4-hydroxy-TEMPO, 4-oxo-TEMPO, 4-amino-TEMPO, 4-acetamido-TEMPO, 4-benzyloxy-TEMPO, and 4-acetoxy-TEMPO, and

wherein the reaction mixture is in two phases.

Claim 12 (Canceled.)

Claim ~~13~~ 11 (Original): The process as claimed in claim ~~12~~ 10, wherein at least one phase transfer catalyst is used.

Claim ~~14~~ 12 (Original): The process as claimed in claim ~~11~~ 10, comprising removing the reaction mixture continuously.

Claim ~~15~~ 13 (Original): The process as claimed in claim ~~11~~ 10, wherein the pH of aqueous phase of the reaction mixture is between 7 and 11.

Claim ~~16~~ 14 (Original): The process as claimed in claim ~~11~~ 10, wherein the nitroxyl compound used is 4-hydroxy-TEMPO.

Claim ~~17~~ 15 (Original): The process as claimed in claim ~~11~~ 10, wherein reaction temperature is between -5°C and 20°C.

Claim ~~18~~ 16 (Original): The process as claimed in claim ~~11~~ 10, wherein from 2 to 3 mol equivalents of the hypohalite are used based on the number of functional groups to be oxidized.

Claim ~~19~~ 17 (Original): The process as claimed in claim ~~11~~ 10, wherein the alkyne alcohol used is selected from the group consisting of 2-propyn-1-ol and 2-butyne-1,4-diol.

Claim ~~20~~ 18 (Original): The process as claimed in claim ~~11~~ 10, wherein the reaction is carried out in the presence of a substance selected from the group consisting of phosphate buffer and calcium carbonate.